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## PRE-APPEAL BRIEF REQUEST FOR REVIEW

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May 18, 2001

First Named Inventor

Steven Holmes

Art Unit

2614

Examiner

Yenke, Brian P.

CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 C.F.R. §1.10)

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Date: December 9, 2005

By:

*Marc Fregoso*  
Marc Fregoso

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

A Petition for a Three (3) Month Extension of Time

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐

applicant/inventor.

☐

assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)

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December 9, 2005

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NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

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## **PRE-APPEAL BRIEF REQUEST FOR REVIEW**

### **REMARKS IN SUPPORT**

In the Final office action of July 1, 2005, all the claims were rejected as anticipated or unpatentable over what the Examiner calls "applicant's admitted prior art (AAPA)." The office action identifies what it considers the AAPA as applicant's specification starting at page 8, lines 27 to page 9, line 12. The office action bases this conclusion on a statement in the specification at page 9, lines 11-12, "This process is conventionally known as culling."

The applicant submits that it is clear error for the Examiner to conclude that this statement refers to everything that preceded it, starting with page 8, line 27.

Culling or back-face culling, as it is known in the computer graphics arts means eliminating surfaces invisible to a viewer from further processing. Please see page 663 of *Computer Graphics Principles and Practice*, James D. Foley, et al, Second Edition (1996), copy attached.

The statement on page 9, lines 11-12 of applicant's specification refers to the previous sentence, page 9, lines 4-11, which essentially defines the culling problem in the context of the present invention.

"Advantageously, parts of sections of objects including but not exclusively the foreground CGO, the background CGO and the broadcast background, which when resolved into the screen coordinate system lie outside the screen dimensions or lie between the screen and the nominal user position, or are within the screen dimensions but further away from the screen than some other object are not displayed."

The office action also concluded that Figure 7 illustrates the prior art on the basis of a statement in applicant's specification, page 17, line 22, "The process of 'culling' is illustrated in Figure 7." The Examiner's conclusion that Figure 7 illustrates prior art is clear error.

Figure 7 shows a culling problem because the character 56 is hidden behind a hotspot 40 and not all of the character 56 is displayed. Figure 7, however, shows much more. It illustrates the present invention of combining a foreground computer generated object with a background object which has been transmitted in a broadcast signal.

Applicant respectfully submits that it is clear error for the office action to label a portion of applicant's specification and a drawing figure, which is describing and illustrating his invention, as prior art on the basis of a single statement that defines culling.

SECOND EDITION IN C

# Computer Graphics

PRINCIPLES AND PRACTICE

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To M

To E  
my c

To Jc

To m  
my f

And

projectors are perpendicular to the  $(x, z)$  or  $(y, z)$  planes, then the rectangular extent is the tighter bounding volume. Therefore, multiple bounding volumes may be associated with an object and an appropriate one selected depending on the circumstances.

#### 15.2.4 Back-Face Culling

If an object is approximated by a solid polyhedron, then its polygonal faces completely enclose its volume. Assume that all the polygons have been defined such that their surface normals point out of their polyhedron. If none of the polyhedron's interior is exposed by the front clipping plane, then those polygons whose surface normals point away from the observer lie on a part of the polyhedron whose visibility is completely blocked by other closer polygons, as shown in Fig. 15.17. Such invisible *back-facing* polygons can be eliminated from further processing, a technique known as *back-face culling*. By analogy, those polygons that are not back-facing are often called *front-facing*.

In eye coordinates, a back-facing polygon may be identified by the nonnegative dot product that its surface normal forms with the vector from the center of projection to any point on the polygon. (Strictly speaking, the dot product is positive for a back-facing polygon; a zero dot product indicates a polygon being viewed on edge.) Assuming that the perspective transformation has been performed or that an orthographic projection onto the  $(x, y)$  plane is desired, then the direction of projection is  $(0, 0, -1)$ . In this case, the dot-product test reduces to selecting a polygon as back-facing only if its surface normal has a negative  $z$  coordinate. If the environment consists of a single convex polyhedron, back-face culling is the only visible-surface calculation that needs to be performed. Otherwise, there may be front-facing polygons, such as  $C$  and  $E$  in Fig. 15.17, that are partially or totally obscured.

If the polyhedra have missing or clipped front faces, or if the polygons are not part of polyhedra at all, then back-facing polygons may still be given special treatment. If culling is not desired, the simplest approach is to treat a back-facing polygon as though it were front-facing, flipping its normal in the opposite direction. In PHIGS+, the user can specify a completely separate set of properties for each side of a surface.

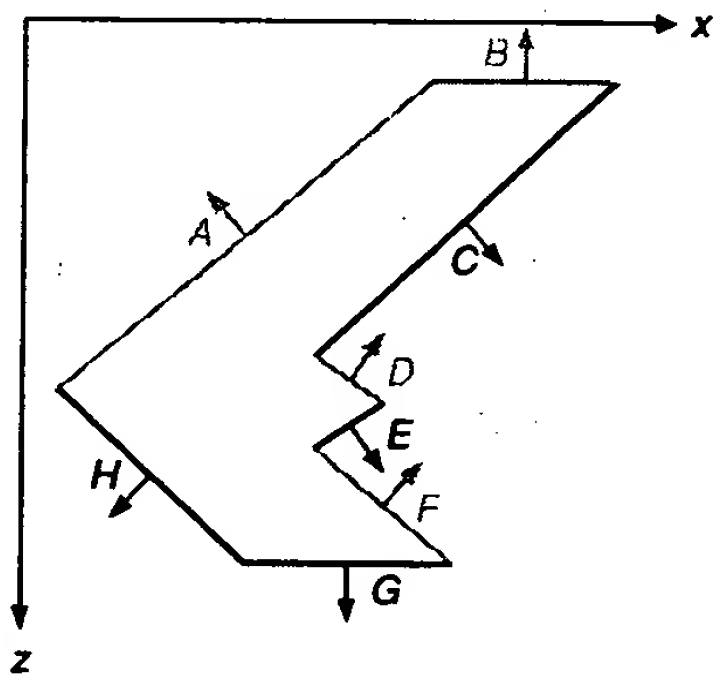


Fig. 15.17 Back-face culling. Back-facing polygons (A,B,D,F) shown in gray are eliminated, whereas front-facing polygons (C,E,G,H) are retained.